**PHA4GE Virtual Training Agenda (Module 1)**

There will be exercises connected to specific lectures. The participants will be provided with results for all exercises after submission of their answers (possibly during wrap-up of the day). We aim for shorter days to avoid screen fatigue for Module 1 (2 to 3.5 hours) and have “days off” in between.

The course will cover sequencing terminology, whole Genome Sequencing and the use of online tools. The opportunity of obtaining a workshop certificate is presented at the end of the course, provided that the following conditions are met:

* 80% attendance
* Completion of all assessments
* Completion of the post-course survey

Audience: None and novel users

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| **TRAINING DAY 1** |
| [1] **WGS in AMR**  What genomic surveillance offers Nigeria, your institution, and your lab. |
| [2] **Microbial whole-genome sequencing (WGS):** Introduction (Pre-recorded Lecture) |
| **TRAINING DAY 2** |
| [3] **Post-sequencing Analysis:** Overview on bacterial genome assembly, how to assess the quality of sequences before and after genome assembly. (Lecture) |
| **Post-sequencing Analysis (Live Demo)** |
| [3E] **Post-sequencing Analysis Exercise**  **Q&A** |
| [4] **Bacterial species identification/characterization using sequencing data:** What components/features of bacteria are used in genomic identification of species? (Pre-recorded Lecture) |
| **Bacterial Species Identification** (Live Demo) |
| 4E] **Exercise (online tools used bacterial identification):** Identification of organisms using CGE tools (SpeciesFinder and KmerFinder) and Pathogenwatch.  **Q&A** |
| **TRAINING DAY 3** |
| [5] **Antimicrobial resistance, Virulence, and Plasmid Prediction of Whole Genome Sequences:** Introduction and Principles |
| [6] **Online tools:** Introduction and presentation of the online tools available for analysis of sequence data (Live Demo). |
| [6E] **Exercise:** Using the CGE tools, participants will be asked to compare and describe AMR genotypes and predicted phenotypes, virulence determinants of FASTA files  **Q&A** |
| **TRAINING DAY 4** |
| [7] **Phylogeny**: Construction, Visualisation and Interpretation (Pre-recorded lecture) |
| **Phylogeny:** Construction, Visualisation and Interpretation using CSIPhylogeny and Microreact (Live demo session) |
| [7E] **Phylogeny Exercise**  **Q&A** |
| **TRAINING DAY 5** |
| [8] **Introduction to Multi-locus Sequence Typing:** Basics of MLST; MLST schemes and databases; Application of MLST |
| Introduction to Pathogenwatch and CGE MLST tool (Live Demo) |
| [8E] **MLST Exercises** |